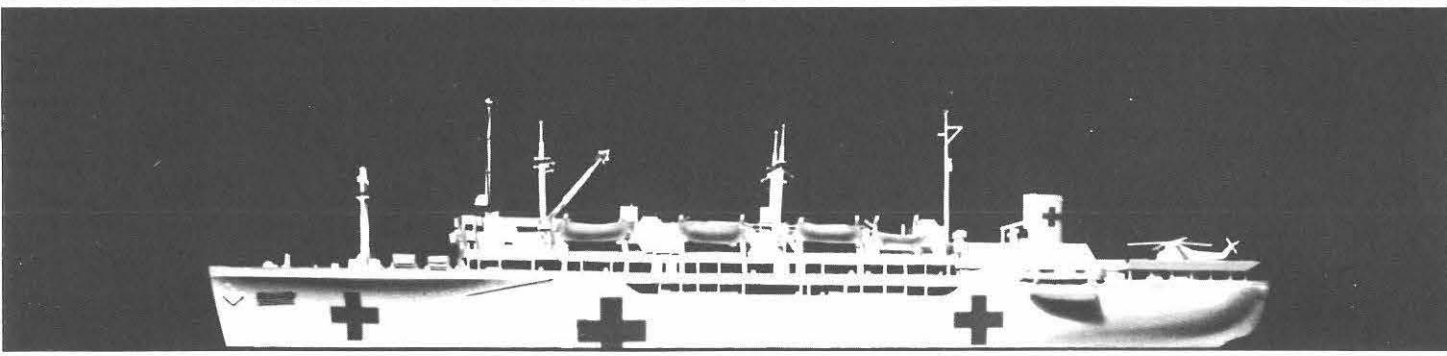
A Report from Viet Nam



Hospital Ship Psychiatry in a War Zone

by
Lt. Cdr. Robert E. Strange, MC, USN
and
Cdr. Ransom J. Arthur, MC, USN

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THE AMERICAN JOURNAL OF PSYCHIATRY

Hospital Ship Psychiatry in a War Zone

BY LT. CDR. ROBERT E. STRANGE, MC, USN, AND CDR. RANSOM J. ARTHUR, MC, USN

The hospital ship Repose *has provided combat-supportive medical services for U. S. forces in Viet Nam, receiving casualties evacuated directly from the field medical units as well as patients referred from the major hospitals ashore. Although the psychiatric patient population aboard was similar in many respects to that at any other military hospital, the function of the ship as an intermediate echelon of psychiatric treatment in the war zone helped to maintain a strong back-to-duty orientation, and 50 percent of all psychiatric patients taken aboard were returned to full duty.*

IN FEBRUARY 1966 the U. S. Navy hospital ship *Repose* arrived off the coast of Viet Nam and began to furnish medical services for Marine and Navy forces in the I Corps area. This vessel was the first and until recently the only hospital ship to function in a combat support role since the Korean War, and her unique situation furnished opportunity for a specialized study of psychiatric problems in the U. S. military population involved in the Southeast Asian conflict. This report details the results of a study of demographic variables and clinical features of psychiatric patients hospitalized aboard *Repose* during the initial seven months of her operations off Viet Nam.

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Clinical Facilities and Personnel

The psychiatric unit aboard the *Repose* was a single ward in two adjoining compartments, containing a total of 48 functioning beds. The staff consisted of one psychiatrist, one psychiatric nurse, and nine hospital corpsmen. This was an open, unlocked unit, and the patients were allowed freedom of movement about the ship commensurate with their degree of illness and responsibility. Treatment methods included individual and group psychotherapy and medications. No somatic therapy was done, and psychotherapy was generally of a short-term type.

The patient census fluctuated greatly. Usually there were 12 to 15 patients on the ward, although on occasion the census rose to as high as 35. Length of hospitalization was also quite variable, ranging between extremes of overnight and 60 days. Over a representative two-month period the mean length of inpatient care was 13.5 days.

Operational Patterns and Intake Sources

During the seven-month period under consideration the *Repose* served two medical functions. Much of the time she steamed in a scheduled pattern and received patients sent from the major hospitals ashore. These patients were referred by specialists at those facilities, who had initially received them from the field medical units. The ship then functioned as a third echelon of treatment. Frequently, however, the ship furnished direct combat support of Marine

operations, and casualties were evacuated directly from the medical units in the field with no previous specialty evaluation, thereby placing the *Repose* in the role of second echelon treatment.

Of the 143 psychiatric patients in this study, 77 (54 percent) were referred for hospitalization by psychiatrists stationed ashore with the Marines. Sixty-six (46 percent) arrived aboard with no initial psychiatric contact elsewhere. One hundred and five Marine and 38 Navy personnel were psychiatric inpatients during this period, the Navy patients coming from both units ashore and ships operating in the area. Repair and upkeep of the ship necessitated several lengthy departures from the war zone during this initial period of operations. Because of all these factors there was great fluctuation in rate of patient intake, but while on station there was a mean admission rate of 1.7 per day.

Method

For purposes of study demographic variables were extracted and compiled on the initial group of 143 hospitalized patients, particularly in relationship to diagnostic categories. Three basic categories were utilized: character and behavior disorder, psychoneurotic reaction, and psychotic illness. In the total patient population 67 percent were classified as character and behavior disorder, 20 percent as psychoneurotic, and 13 percent as psychotic (Table 1).

Results

Character and behavior disorder. These patients had a mean age of 21.4 years. A disproportionate number were in the pay grade of E-2 (private first class or seaman apprentice). The sample was characterized by short length of service. Sixty-five percent were unmarried. Excited, agitated, or violent behavior was noted in 45 percent of these cases. A history of civilian and military disciplinary problems tended to be characteristic of this group. Sixty-three percent of these men had been in active combat, and in 49 percent combat was judged to be a major factor in precipitating hospitalization (Figure 1).

Psychoneurotic disorder. These patients had a mean age of 25 years and were characteristically in the pay grade of E-4 and above with more than three years of service. Forty-eight percent were unmarried. Sixty-one percent reported somatic complaints, and 54 percent had significant depressive symptoms. Only 18 percent had a history of agitation or violence. Seventy-nine percent had been in combat, and this stress was felt to be a major precipitating factor in the hospitalization of 47 percent of this group.

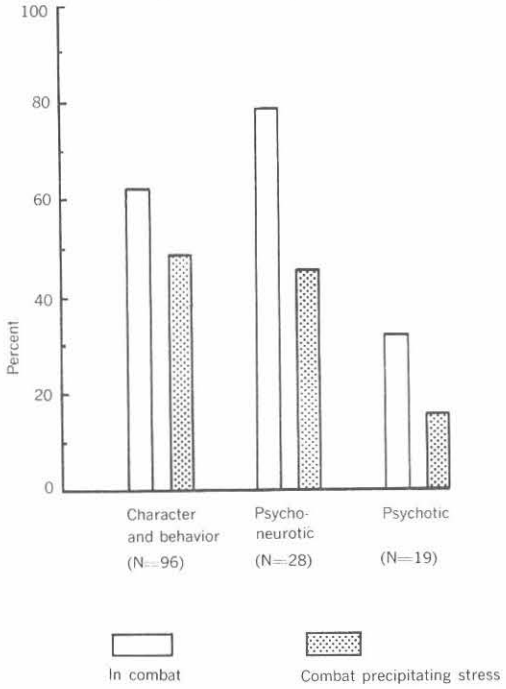
Psychotic disorder. These patients had a mean age of 22.6; a relatively high proportion were in the pay grades of E-3 and E-4. Seventy-seven percent were single, an apparently disproportionate number after age differences were taken into account. Ninety

TABLE 1

Distribution by Age and Diagnostic Categories of 143 Psychiatric Patients Admitted Aboard USS Repose

AGE (YEARS)	CHARACTER AND BEHAVIOR DISORDER		PSYCHO-NEUROTIC DISORDER		PSYCHOTIC DISORDER		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
46-50	1	1.0					1	.7
41-45			1	3.6			1	.7
36-40	1	1.0	2	7.1			3	2.1
31-35	1	1.0	3	10.7	2	10.5	6	4.2
26-30	5	5.2	4	14.3	2	10.5	11	7.7
21-25	36	37.5	7	25.0	10	52.6	53	37.1
17-20	52	54.2	11	39.3	5	26.3	68	47.5
Total	96	100.0	28	100.0	19	100.0	143	100.0
Mean age	21.4		25.0		22.6			

FIGURE 1
Percent of Hospital Ship Psychiatric Patients Who Had Been in Active Combat and Percent for Whom Combat Was a Significant Precipitating Stress



percent manifested overt thought disorders, and 63 percent had perceptual disturbances to the point of hallucinations. Thirty-two percent had paranoid ideation; 53 percent showed hostility by suspiciousness, irritability, or menacing behavior; and 18 percent had a history of excited or violent behavior. Sixty-three percent were apathetic and withdrawn.

Of this group only 32 percent had been in combat, and combat was judged to be a significant precipitating stress in only 16 percent.

Other variables. Suicidal attempts and threats were relatively infrequent in this sample (eight percent), as were homosexual problems or concerns (four percent). Only six patients reported homosexual preoccupations, and three of these were psychotic.

In comparing the three diagnostic categories there were no significant statistical differences in region of birth, previous psychiatric contacts, or educational level. Forty-three percent of the total sample had completed high school. There were no differences in length of time in the war zone and no differences in proportions of Navy and Marine Corps personnel by diagnosis.

Thirty percent of the total sample reported significant marital problems with no diagnostic differentiation. Combat wounds were judged to be a major precipitating factor in six percent, and these occurred mostly in the character and behavior disorder group.

Treatment and Disposition

Of the character and behavior disorder group 54 percent received medications during the course of their hospitalization. Fifty-two percent were eventually returned to full duty, 37 percent were evacuated for medical administrative action, and 11 percent had some other form of disposition (Table 2).

Eighty-two percent of the psychoneurotic patients were treated with drugs. Seventy-five percent were returned to full duty and 25 percent were evacuated out of the combat zone.

Of the psychotic patients, 90 percent were treated with medications and all were evacuated to hospitals in the United States for additional treatment and disposition.

Discussion

The above figures indicate that the majority of psychiatric patients treated aboard the *Repose* in the war area were similar to those in other military hospitals. For example, the proportions of major diagnostic categories among 470 patients at a large naval hospital in the United States were: character and behavior disorders, 69 percent; psychoneurotic, 23 percent; and psychotic, eight percent. Character and behavior disorders predominated, as is true of the general military psychiatric population. For purposes of this initial study the personality disorder category included those with the diagnosis of situational reaction.

This sample of combat zone patients presented certain unique characteristics, however. Combat stress was judged to be a major factor in precipitating symptoms in 47 percent of the psychoneurotics and in 49 percent of the character and behavior disorders. It appeared that many of these patients might have avoided hospitalization

TABLE 2

Distributions for Disposition and Diagnostic Categories of 143 Psychiatric Patients Admitted Aboard USS Repose

DISPOSITION	CHARACTER AND BEHAVIOR DISORDER		PSYCHO-NEUROTIC DISORDER		PSYCHOTIC DISORDER		TOTAL	
	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT	NUMBER	PERCENT
Full duty	50	52.1	21	75.0			71	49.6
To duty recommending administrative action or discharge	4	4.2					4	2.8
Transfer to naval hospital	35	36.5	7	25.0	19	100.0	61	42.7
Return to limited duty	1	1.0					1	.7
Desertion	1	1.0					1	.7
Other	5	5.2					5	3.5
Total	96	100.0	28	100.0	19	100.0	143	100.0

if they had not had traumatic combat experiences, their basic psychoneurotic or characterologic problems notwithstanding.

In psychotic patients, however, the stress of combat was relatively unimportant. Only 32 percent had been in combat, and in only 16 percent did combat appear to be a precipitating factor in illness. As was predictable from prior studies, the incidence of hospitalization for psychosis was less influenced by external factors than the incidence of hospitalization for psychoneurosis or character disorder(1).

Relative infrequency of suicidal attempts and threats were characteristic of this combat zone psychiatric population. In other military hospitals these are more commonly encountered problems. For example, 24 percent of the patient sample in the Navy hospital in the continental United States previously mentioned had made suicide threats, gestures, or attempts. It is speculated that the externalization of aggression in combat is important in decreasing the comparative frequency of self-directed violence. Thirty-nine percent of the total patient group manifested agitated and/or violent behavior, frequently of an aggressive nature; and hostility was a common finding in all except psychoneurotic cases. Depressive symptoms were most common in psychoneurotic patients (54 percent) but also occurred in a large number of character disorders.

The management of aggressive manifestations is of particular importance in the treatment of combat zone patients. There is situational approval of external aggressive expression. Such aggressive behavior is apparently accompanied by a decrease in suicidal attempts and threats. Yet there are many who cannot tolerate such externalization of aggression and who internalize their hostility and develop a depression. The psychodynamics of aggression was the major area of therapeutic attention in both group and individual sessions on the *Repose*.

In this group of patients there were very few with homosexual problems or similar concerns; this finding coincides with reports from psychiatrists stationed with the Marine units ashore. It appears that this chronic military problem is less frequent in combat than in garrison. This may be a result of the realistic external stress of war and, again, the encouragement of overt and aggressive activity which partially compensates for the lack of sexual outlet. Also the latent homosexual undertones in the intimate and socially acceptable "buddy" relationships among combat troops may decrease the need for more overt expression.

Seventy-five percent of the psychoneurotic and 52 percent of the character disorder patients were returned to full duty. All psychotic cases were evacuated, however; and the group returned to full duty was 50 percent of the total hospitalized. As might be expected, this is a lower figure than that of the psychiatric units in the field, but it is

a higher rate than that of hospitals geographically removed from the war area.

It is well known that the farther a psychiatric casualty is removed from combat, the more difficult it is to return him to duty. The position of the hospital ship psychiatric facility is that of an intermediate echelon of treatment between the field and the out-of-theater hospital. Because of geographical and psychological involvement in the combat zone a number of patients who require longer care than can be given ashore can be treated on the ship and returned to their units, whereas if they had been evacuated out-of-country the likelihood of return to duty is much less. Such salvage of combat manpower is, of course, a primary mission of military psychiatry.

A strong back-to-duty orientation was maintained on the ward. Those patients, primarily psychotic, who obviously were going to have to be evacuated were usually transferred after four or five days of treatment designed to control their florid psychosis. An attempt was made to have patients who were to return to duty in the majority on the ward at any one time.

Group therapy sessions, frequently led by hospital corpsmen who are neuropsychiatric technicians, were held daily. In both individual and group therapy, discussion of combat of course predominated and it was difficult to get beyond this topic in therapeutic work. Ventilation, discussion, suggestion, persuasion, and support were the major therapeutic devices employed. All the discussions were strongly reality oriented. War is all too real and one cannot escape from reality—this point was brought home repeatedly.

Drug therapy was also employed with good success. This is the first war since the introduction of phenothiazine drugs, and they proved to be very useful indeed. Any acute combat syndrome—almost regardless of symptoms, including acute agitated depression, anxiety reaction, hysterical episodes, and psychosomatic problems—seemed to be largely ameliorated within 48 hours by the use of very heavy doses of chlorpromazine coupled with nighttime sodium amobarbital sedation. After 48 hours, medication could be drastically reduced or even stopped and psychotherapy begun without relapse.

A major problem in ward management, not encountered to so great a degree in ordinary hospital practice, was the extreme difficulty in finding useful tasks to keep the patients occupied after the initial stage of hospitalization had passed. The patients frequently had too much time to brood, and this idleness seemed to increase their anxiety.

The general ward atmosphere was different in several ways from that prevailing in Navy hospitals within the United States. In the first place, antisocial or acting out behavior, so common in a peacetime ward with character disorder patients, was virtually absent on the hospital ship. Secondly, the general tone of the ward was that of marked depression, much more so than in an ordinary Navy psychiatric ward. This depressed ambience seemed to be due to the large number of depressed patients (a characteristic Viet Nam psychiatric syndrome) and to the pervading sense of returning to combat and possible death or mutilation. Underneath the depression was a strong undercurrent of hostility, which taxed severely the psychiatrist's own emotional resources as well as those of his staff.

A common patient type encountered on the wards was a squad leader, particularly one in the grade of corporal. It seemed difficult for some of these young men, still in late adolescence, to handle the grave challenge of being responsible for other men's lives. Unlike the older officers and more senior noncommissioned officers, their own maturation had not progressed far enough to make the burden of leadership tolerable.

There seemed to be two peaks for psychiatric disability: one after two or three months, when the immature personalities or character and behavior disorder individuals collapsed, and the other at approximately 10-11 months, when the anxious, neurotic but highly conscientious Marine might develop incapacitating symptoms. The closer he approached to the 13-month rotation date the more obsessively convinced the individual became of the imminence of his death. In some individuals, particularly corpsmen, the fear of gross mutilation was greater than that of death itself.

However, in spite of all the stress in the war zone, the rate of psychiatric disability in Viet Nam has been remarkably low for all the armed forces, less than in either World War II or Korea(2, 3). Many reasons have been advanced to explain this; among the most cogent are a limited, finite tour of duty, intermittent rather than continuous combat exposure, and a high sense of purpose and commitment on the part of the individuals facing combat.

Finally, it must be said that the military psychiatric lessons of 1918, 1943, and the Korean War have been well learned by the young psychiatrists in the Viet Nam theater. They know full well how medical intervention and facilities in the past often encouraged regression and invalidism, and they are imbued with a sense of therapeutic zeal and optimism which is a potent force in the prevention of chronic psychiatric disability.

Summary

A report of psychiatric experience aboard the U. S. Navy hospital ship *Repose* has been presented. A survey of 143 psychiatric cases admitted during the ship's initial operations in the Viet Nam combat zone from February through August 1966 was recorded. Sixty-seven percent of these patients were classified as character and behavior disorders, 20 percent as psychoneurotic, and 13 percent as psychotic. Similarities and differences on demographic variables were presented and discussed. Fifty-two percent of the character and behavior disorder patients and 75 percent of the psychoneurotic patients were returned to full duty.

The role of the hospital ship as an intermediate echelon of psychiatric treatment in the war area was described.

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Good fortune is a giddy maid
Fickle and restless as a fawn;
She smoothes your hair and then the jade
Kisses you quickly and is gone—

But Madam Sorrow scorns all this;
She shows no eagerness for flitting
But with a long and fervent kiss
Sits by your bed and brings her knitting.

—HEINRICH HEINE

Before prescribing, lift flap for complete information on indications, contraindications, precautions, adverse reactions and dosage.

Smith Kline & French Laboratories, Philadelphia

PSD:TZ48b July 1968

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"Any acute combat syndrome—almost regardless of symptoms, including acute agitated depression, anxiety reaction, hysterical episodes, and psychosomatic problems—seemed to be largely ameliorated within 48 hours by the use of very heavy doses of ['Thorazine'] coupled with nighttime sodium amobarbital sedation.

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PRESCRIBING INFORMATION

Thorazine®

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Antiemetic

Thorazine (chlorpromazine, SK&F) is a tranquilizer, potentiator and antiemetic with a distinctive sedating effect. Its value and versatility in general medicine, surgery, obstetrics and psychiatry have been established by use in over 25 million patients.

COMPOSITION

Tablets—Each tablet contains chlorpromazine hydrochloride, 10 mg., 25 mg., 50 mg., 100 mg., or 200 mg.

Spansule® sustained release capsules—Each 'Spansule' sustained release capsule contains chlorpromazine hydrochloride, 30 mg., 75 mg., 150 mg., 200 mg., or 300 mg., so prepared that a therapeutic dose is released promptly and the remaining medication, released gradually and without interruption, sustains the effect for 10 to 12 hours.

Ampuls, 1 cc. and 2 cc. (25 mg./cc.)—Each cc. contains, in aqueous solution, chlorpromazine hydrochloride, 25 mg.; ascorbic acid, 2 mg.; sodium bisulfite, 1 mg.; sodium sulfite, 1 mg.; sodium chloride, 6 mg.

Multiple-dose Vials, 10 cc. (25 mg./cc.)—Each cc. contains, in aqueous solution, chlorpromazine hydrochloride, 25 mg.; ascorbic acid, 2 mg.; sodium bisulfite, 1 mg.; sodium sulfite, 1 mg.; sodium chloride, 1 mg. Contains benzyl alcohol, 2%, as preservative.

Syrup—Each 5 cc. contains chlorpromazine hydrochloride, 10 mg.

Suppositories—Each suppository contains chlorpromazine, 25 mg. or 100 mg.; glycerin, glyceryl monopalmitate, glyceryl monostearate, hydrogenated cocoanut oil fatty acids, hydrogenated palm kernel oil fatty acids.

Concentrate (primarily for hospital use)—Each cc. contains chlorpromazine hydrochloride, 30 mg.

ACTION AND USES

General Medicine:

Agitation, tension, apprehension, or anxiety (moderate to severe).

Nausea, vomiting and hiccups.

Cancer and severe pain, to reduce apprehension, suffering and, by potentiation, narcotic requirements, and to control nausea and vomiting.

Alcoholism, for agitation, delirium tremens, and nausea and vomiting.

Surgery:

To control restlessness, apprehension, pain, nausea and vomiting; to reduce, by potentiation, narcotic, sedative and anesthetic requirements.

Obstetrics:

To control pain, apprehension, nausea and vomiting; to reduce by potentiation requirements for narcotics, sedatives and anesthetics—thus lessening risk of respiratory depression in mother and infant.

Psychiatry:

For control of agitation, anxiety, tension, confusion and related symptoms seen in neuroses and such psychotic conditions as schizophrenias, manic-depressive states (manic phase), severe personality disorders, involutional psychoses, degenerative states and senile psychoses.

Note: For information on the less frequently seen conditions in which the use of Thorazine (chlorpromazine, SK&F) is recommended, contact SK&F Medical Department.

CONTRAINDICATIONS

Comatose states or presence of large amounts of C.N.S. depressants (alcohol, barbiturates, narcotics, etc.).

PRECAUTIONS AND ADVERSE REACTIONS

Drowsiness, usually mild to moderate, may occur. This possibility should be borne in mind when prescribing for patients who drive cars or operate machinery. Generally, drowsiness disappears after the first or second week. If troublesome, lower dosage or administer small amounts of dextroamphetamine.

Other adverse reactions: Occasional dry mouth, nasal congestion, constipation, amenorrhea, miosis and, very rarely, mydriasis. Mild fever (99°F.) may occur after large I.M. doses. Increases in appetite and weight sometimes occur.

Because of its C.N.S. depressant effect, Thorazine (chlorpromazine, SK&F) should be used with caution in patients with chronic respiratory disorders such as severe asthma and emphysema.

Jaundice: Over-all incidence has been low, regardless of indication or dosage. Most investigators conclude it is a sensitivity reaction. Most cases occur between the second and fourth weeks of therapy. The clinical picture resembles infectious hepatitis, with laboratory features of obstructive jaundice, rather than those of parenchymal damage. It is usually promptly reversible on withdrawal of the medication.

There is no conclusive evidence that preexisting liver disease makes patients more susceptible to jaundice. Alcoholics with cirrhosis have been successfully treated with 'Thorazine' without complications. Nevertheless, the medication should be used cautiously in patients with liver disease.

If fever with grippe-like symptoms occurs, test for increased bilirubin or for bile in urine. If tests are positive, stop treatment.

Liver function tests in jaundice induced by the drug may mimic extrahepatic obstruction; withhold exploratory laparotomy until extrahepatic obstruction is confirmed.

Agranulocytosis, though rare, has been reported. Observe patients regularly for sudden appearance of sore throat or other signs of infection. If white blood counts and differential smears indicate cellular depression, stop treatment and start antibiotic and other suitable therapy.

Most cases have occurred between the 4th and 10th weeks of therapy; patients should be watched closely during that period.

Moderate suppression of white blood cells is not an indication for stopping treatment unless accompanied by the symptoms described above.

Potentiation: Thorazine (chlorpromazine, SK&F) prolongs and intensifies the action of C.N.S. depressants such as anesthetics, barbiturates and narcotics. When 'Thorazine' is administered concomitantly, about ¼ to ½ the usual dosage of such agents is required. When 'Thorazine' is not being administered for potentiation, it is best to stop such depressants before starting 'Thorazine' treatment. These agents may subsequently be reinstated at low doses and increased as needed.

Note: 'Thorazine' does *not* potentiate the anticonvulsant action of barbiturates. Therefore, dosage of anticonvulsants, including barbiturates, should *not* be reduced if 'Thorazine' is started. Instead, start 'Thorazine' at low doses and increase as needed.

Hypotensive Effects: Postural hypotension, simple tachycardia, momentary fainting and dizziness may occur after the first injection; occasionally after subsequent injections; rarely, after the first oral dose. Usually recovery is spontaneous and symptoms disappear within ½ to 2 hours. Occasionally, these effects may be more severe and prolonged, producing a shock-like condition.

To minimize hypotension, keep patient prone and observe for at least ½ hour after initial injection. To control hypotension, place patient in head-low position with legs raised. If a vasoconstrictor is required, 'Levophed' and 'Neo-Synephrine'* are the most suitable. Other pressor agents, including epinephrine, should not be used as they may cause a paradoxical further lowering of blood pressure.

EKG changes—particularly nonspecific, usually reversible Q and T wave distortions—have been observed in some patients receiving phenothiazine tranquilizers, including 'Thorazine'. Their relationship to myocardial damage has not been confirmed.

Antiemetic Effect: 'Thorazine' may mask signs of overdosage of toxic drugs and may obscure conditions such as intestinal obstruction and brain tumor.

Dermatological Reactions of a mild urticarial type (suggesting allergic origin) or photosensitivity are seen. Avoid undue exposure to sun. More severe reactions, including exfoliative dermatitis, have been reported occasionally.

Neuromuscular (Extrapyramidal) Reactions closely resembling parkinsonism occurred in a few patients on high psychiatric doses. Such symptoms usually disappear shortly after dosage is decreased, the drug temporarily withdrawn, or concomitant administration of an anti-parkinsonism agent (see *PDR*). In severe cases suitable supportive measures such as maintaining a clear airway and adequate hydration should be used. When 'Thorazine' is reinstituted, it should be at a lower dosage.

In rare instances, some extrapyramidal symptoms have lasted months and even years, particularly in elderly patients with previous brain damage.

Lactation and Moderate Breast Engorgement may occur in females on large doses. This transitory condition disappears on lowering dosage or stopping drug.

Special Considerations in Long-Term Therapy: Skin pigmentation and ocular changes have occurred in some patients taking substantial doses of Thorazine (chlorpromazine, SK&F) for prolonged periods.

Rare instances of skin pigmentation have been observed in hospitalized mental patients, primarily females who have received the drug for three years or more in dosages ranging from 500 mg. to 1500 mg. daily. The pigmentary changes, restricted to exposed areas of the body, range from an almost imperceptible darkening of the skin to a slate gray color, sometimes with a violet hue. Histological examination reveals a pigment, chiefly in the dermis, which is probably melanin or a melanin-like complex. The pigmentation may fade following discontinuance of the drug. In some patients, there has been marked diminution of pigmentation following administration of D-penicillamine.

Ocular changes have occurred more frequently than skin pigmentation and have been observed both in pigmented and non-pigmented patients receiving 'Thorazine' usually for two years or more in dosages of 300 mg. daily and higher. Eye changes are characterized by deposition of fine particulate matter in the lens and cornea. In more advanced cases, star-shaped opacities have also been observed in the anterior portion of the lens. The nature of the eye deposits has not yet been determined. A small number of patients with more severe ocular changes have had some visual impairment. In addition to these corneal and lenticular changes, epithelial keratopathy has been reported. Reports suggest that the eye lesions may regress after withdrawal of the drug.

Since the occurrence of eye changes seems to be related to dosage levels and/or duration of therapy, it is suggested that long-term patients on moderate to high dosage levels have periodic ocular examinations.

The etiology of these reactions is not clear, and other factors such as nutritional deficiencies, diet, endocrine disturbances, exposure to light and concomitant medications may be involved. If either of these reactions is observed, the physician should weigh the benefits of continued therapy against the possible risks and, on the merits of the individual case, determine whether or not to continue present therapy, lower the dosage, or withdraw the drug.

Usage in Pregnancy: Animal reproductive studies and clinical experience to date have not demonstrated any teratogenic effect from 'Thorazine'. However, as with any medication, it should be used in pregnant patients only when, in the judgment of the physician, it is necessary for the welfare of the patient.

Adverse Effects Reported with Phenothiazines: Since their introduction, the phenothiazine derivatives have benefited many millions of patients and have been widely used in nearly all fields of medical practice.

Adverse effects with different phenothiazines vary in type, frequency and mechanism of occurrence, i.e., some are dose-related, while others involve individual patient sensitivity. Some adverse effects may be more likely to occur, or occur with

*'Levophed' and 'Neo-Synephrine' are the trademarks (Reg. U.S. Pat. Off.) of Winthrop Laboratories for its brands of levarterenol and phenylephrine respectively.

greater intensity, in patients with special medical problems, e.g., patients with mitral insufficiency or pheochromocytoma have experienced severe hypotension following recommended doses of certain phenothiazines.

Not all of the following adverse reactions have been observed with every phenothiazine derivative, but they have been reported with one or more and should be borne in mind when drugs of this class are administered: extrapyramidal symptoms (opisthotonos, oculogyric crisis, hyperreflexia, dystonia, akathisia, dyskinesia, parkinsonism) some of which, in rare instances, have lasted months and even years—particularly in elderly patients with previous brain damage; grand mal convulsions; altered cerebrospinal fluid proteins; cerebral edema; potentiation of central nervous system depressants (opiates, analgesics, antihistamines, barbiturates, alcohol) and atropine, heat, phosphorus insecticides; autonomic reactions (dryness of mouth, nasal congestion, headache, nausea, constipation, obstipation, adynamic ileus, inhibition of ejaculation); reactivation of psychotic processes, catatonic-like states; hypotension (sometimes fatal; cardiac arrest); blood dyscrasias (pancytopenia, thrombocytopenic purpura, leukopenia, agranulocytosis, eosinophilia); liver damage (jaundice, biliary stasis); endocrine disturbances (lactation, galactorrhea, gynecomastia, menstrual irregularities, false positive pregnancy tests); skin disorders (photosensitivity, itching, erythema, urticaria, eczema up to exfoliative dermatitis); other allergic reactions (asthma, laryngeal edema, angioneurotic edema, anaphylactoid reactions); peripheral edema; reversed epinephrine effect; hyperpyrexia; pigmentary retinopathy; with prolonged administration of substantial doses, skin pigmentation, epithelial keratopathy, and lenticular and corneal deposits.

Although phenothiazines cause neither psychic nor physical dependence, sudden discontinuance in long-term psychiatric patients may cause temporary symptoms, e.g., nausea and vomiting, dizziness, tremulousness.

Note: There have been occasional reports of sudden death in patients receiving phenothiazines. In some cases, the cause appeared to be asphyxia due to failure of the cough reflex. In others, the cause could not be determined. There is not sufficient evidence to establish a relationship between such deaths and the administration of phenothiazines.

ADMINISTRATION AND DOSAGE

Adjust dosage to individual and the severity of his condition. It is important to increase dosage until symptoms are controlled. Dosage should be increased more gradually in senile or emaciated patients. In continued therapy, gradually reduce dosage to the lowest effective maintenance level, after symptoms have been controlled for a reasonable period.

In general, dosage recommendations for other oral forms of the drug may be applied to Spansule® brand sustained release capsules on the basis of total daily dosage in milligrams.

Increase parenteral dosage only if hypotension has not occurred. Before using I.M., see Important Notes on Injection.

General Medicine:

Adults: AGITATION, TENSION, APPREHENSION, OR ANXIETY—*Oral:* 10 mg. t.i.d. or q.i.d., or 25 mg. b.i.d. or t.i.d. MORE SEVERE CASES—*Oral:* 25 mg. t.i.d. After 1 or 2 days, daily dosage may be increased by 20 to 50 mg. semiweekly, until patient becomes calm and cooperative. (Maximum improvement may not be seen for weeks or even months.) Continue optimum dosage for 2 weeks; then gradually reduce to maintenance level. Daily dosage of 200 mg. is not unusual. Some patients require higher dosages (e.g., 800 mg. daily is not uncommon in discharged mental patients). PROMPT CONTROL OF SEVERE SYMPTOMS—*I.M.:* 25 mg. (1 cc.). If necessary, repeat in 1 hour. Subsequent doses should be oral, 25 to 50 mg. t.i.d.

NAUSEA AND VOMITING—*Oral:* 10 to 25 mg. q4-6h, p.r.n., increased, if necessary. *I.M.:* 25 mg. (1 cc.). If no hypotension occurs, give 25 to 50 mg. q3-4h, p.r.n., until vomiting stops. Then switch to oral dosage. *Rectal:* One 100 mg. suppository q6-8h, p.r.n. In some patients, half this dose will do.

HICCUPS—*Oral:* 25 to 50 mg. t.i.d. or q.i.d. If symptoms persist for 2-3 days, give 25 to 50 mg. (1-2 cc.) I.M. Should symptoms persist, use *slow* I.V. infusion with patient flat in bed: 25 to 50 mg. (1-2 cc.) in 500 to 1,000 cc. of saline. Follow blood pressure closely.

ALCOHOLISM: (1) SEVERELY AGITATED—*I.M.:* 25 to 50 mg. (1-2 cc.). Repeat, if necessary. Start subsequent oral dosages at 25 to 50 mg. t.i.d. (2) AGITATED BUT MANAGEABLE—*Oral:* 50 mg. followed by 25 to 50 mg. t.i.d. (3) AMBULATORY PATIENTS WITH WITHDRAWAL SYMPTOMS—*Oral:* 10 mg. t.i.d. or q.i.d., or 25 mg. b.i.d. or t.i.d. Note: Stuporous patients should sleep off alcohol effects before treatment is begun.

CANCER AND SEVERE PAIN—*I.M.:* 25 mg. (1 cc.) b.i.d. or t.i.d. *Oral:* 10 mg. t.i.d. or q.i.d., or 25 mg. b.i.d. or t.i.d. Note: Reduce dosage of concomitant narcotics and sedatives to ¼ or ½.

Children's Dosage for Most Conditions (INCLUDING NAUSEA AND VOMITING, AND BEHAVIOR DISORDERS)—*Oral:* ¼ mg./lb. body weight q4-6h (e.g., 40 lb. child—10 mg. q4-6h). *Rectal:* ½ mg./lb. body weight q6-8h, p.r.n. (e.g., 20-30 lb. child—half of a 25 mg. suppository q6-8h). *I.M.:* ¼ mg./lb. body weight q6-8h, p.r.n. *Maximum I.M. Dosage:* Children up to 5 yrs. (or 50 lbs.), not over 40 mg./day; 5-12 yrs. (or 50-100 lbs.), not over 75 mg./day except in severe cases (see Psychiatry).

Surgery:

Adults: PREOPERATIVE—*Oral:* 25 to 50 mg., 2 to 3 hours before the operation. *I.M.:* 12.5 to 25 mg. (0.5-1 cc.), 1 to 2 hours before operation. DURING SURGERY—Administer only to control acute nausea and vomiting, retching, hiccups, or restlessness. *I.M.:* 12.5 mg. (0.5 cc.). Repeat in ½ hour if necessary and if no hypotension occurs. *I.V.:* 2 mg. per fractional injection, at 2-minute intervals. Do not exceed 25 mg. Dilute to 1 mg./cc., i.e., 1 cc. (25 mg.) mixed with 24 cc. of saline. POSTOPERATIVE—*Oral:* 10 to 25 mg. q4-6h, p.r.n. *I.M.:* 12.5 to 25 mg. (0.5-1 cc.). Repeat in 1 hour if necessary and if no hypotension occurs.

Children: PREOPERATIVE—¼ mg./lb. body weight, either *orally* 2 to 3 hours before operation, or *I.M.* 1 to 2 hours before. DURING SURGERY—*I.M.:* ⅛ mg./lb. body weight. Repeat in ½ hour if necessary and if no hypotension occurs. *I.V.:* 1 mg. per fractional injection at 2-minute intervals and not exceeding recommended I.M. dosage. Always dilute to 1 mg./cc., i.e., 1 cc. (25 mg.) mixed with 24 cc. of saline. POSTOPERATIVE—¼ mg./lb. body weight, either *orally* q4-6h, p.r.n., or *I.M.* Repeat in 1 hour if necessary and if no hypotension occurs.

Obstetrics:

IN LABOR AND DELIVERY—*I.M.:* 12.5 to 25 mg. (0.5-1 cc.), administered when cervical dilation reaches 3-5 cm. or strong labor begins. At same time (but not in same syringe) give ¼ to ½ usual dose of narcotic sedative, plus 0.4 mg. of scopolamine, if desired. Depending upon blood pressure, respiration and general condition of patient, repeat Thorazine (chlorpromazine, SK&F) alone or with reduced amounts of other agents in 3-5 hours.

Psychiatry:

Increase dosage gradually until symptoms are controlled. Maximum improvement may not be seen for weeks or even months. Continue optimum dosage for 2 weeks; then gradually reduce dosage to the lowest effective maintenance level.

Adults: OFFICE PATIENTS OR OUTPATIENTS—*Oral:* 10 mg. t.i.d. or q.i.d., or 25 mg. b.i.d. or t.i.d. MORE SEVERE CASES—*Oral:* 25 mg. t.i.d. After 1 or 2 days, daily dosage may be increased by 20-50 mg. at semiweekly intervals until patient becomes calm and cooperative. PROMPT CONTROL OF SEVERE SYMPTOMS—*I.M.:* 25 mg. (1 cc.). If necessary, repeat in 1 hour. Subsequent doses should be oral, 25-50 mg. t.i.d.

HOSPITALIZED PATIENTS: ACUTELY AGITATED, MANIC, OR DISTURBED—*I.M.:* 25 mg. (1 cc.). If necessary, give additional 25 to 50 mg. injection in 1 hour. Increase subsequent I.M. doses gradually over several days—up to 400 mg. q4-6h in exceptionally severe cases—until patient is controlled. Usually patient becomes quiet and cooperative within 24 to 48 hours and oral doses may be substituted and increased until the patient is calm. 500 mg. a day is generally sufficient. However, gradual increases to 2,000 mg. a day or higher may be needed. LESS ACUTELY AGITATED PATIENTS—*Oral:* 25 mg. t.i.d. Increase gradually until effective dose is reached—usually 400 mg. daily.

Children: Select route of administration according to severity of patient's condition and increase dosage gradually as required. *Oral:* ¼ mg./lb. body weight q4-6h, p.r.n. (e.g., for 40 lb. child—10 mg. q4-6h). *Rectal:* ½ mg./lb. body weight q6-8h, p.r.n. (e.g., for 20-30 lb. child—half of a 25 mg. suppository q6-8h). *I.M.:* ¼ mg./lb. body weight q6-8h, p.r.n. In severely disturbed or manic states, higher dosages (50-100 mg. daily, and in older children, 200 mg. daily or more) may be necessary. *Maximum I.M. Dosage:* Children up to 5 yrs. (or 50 lbs.), not over 40 mg./day; 5-12 yrs. (or 50-100 lbs.), not over 75 mg./day except in unmanageable cases.

IMPORTANT NOTES ON INJECTION

Inject slowly, deep into upper outer quadrant of buttock.

Because of possible hypotensive effects, reserve parenteral administration for bedfast patients or for acute ambulatory cases, and keep patient lying down for at least ½ hour after injection. If irritation is a problem, dilute Injection with saline or 2% procaine; mixing with other agents in the syringe is not recommended. Subcutaneous injection is not advised. Avoid injecting undiluted Thorazine (chlorpromazine, SK&F) into vein. I.V. route is only for severe hiccups and surgery.

Because of the possibility of contact dermatitis, avoid getting solution on hands or clothing. Protect from light, or discoloration may occur. Slight yellowing will not alter potency. Discard if markedly discolored.

OVERDOSAGE

One of three clinical pictures may be seen:

1. Extreme somnolence: patient can usually be roused with prodding, but if permitted will fall asleep. General condition is usually satisfactory—skin, though pale, is warm and dry. Slight blood pressure, respiratory and pulse changes may occur but are not problems.
2. Mild to moderate drop in blood pressure (whether conscious or unconscious). Skin is markedly gray but warm and dry. Nail beds are pink. Respiration is slow and regular. Pulse is strong but rate slightly increased.
3. Severe hypotension, possibly accompanied by weakness, cyanosis, perspiration, rapid thready pulse and respiratory depression.

TREATMENT is essentially symptomatic and supportive. Early gastric lavage and intestinal purges may help. Centrally acting emetics will not help because of the antiemetic effect of Thorazine (chlorpromazine, SK&F). Give hot coffee or tea.

Severe hypotension usually responds to measures described under Hypotensive Effects. Additional measures include pressure bandages to lower limbs, oxygen and I.V. fluids.

If stimulant is desired, use amphetamine, dextroamphetamine, or caffeine and sodium benzoate.

Avoid stimulants that may cause convulsions (e.g., picrotoxin and pentylenetetrazol).

HOW SUPPLIED

Tablets—10 mg., 25 mg. and 50 mg., in bottles of 100 and 1000; and, for use in severe neuropsychiatric conditions, 100 mg. and 200 mg., in bottles of 100 and 1000. **Ampuls**—1 cc. and 2 cc. (25 mg./cc.), in boxes of 6, 100 and 500. **Multiple-dose Vials**—10 cc. (25 mg./cc.), in boxes of 1, 20 and 100. **Spansule® sustained release capsules**—30 mg., 75 mg., 150 mg. and 200 mg., in bottles of 50 and 500; and, for use in severe neuropsychiatric conditions, 300 mg., in bottles of 50. **Syrup**—10 mg./5 cc., in 4 fl. oz. light-proof bottles. **Suppositories**—25 mg. and 100 mg., in boxes of 6. **Concentrate** (primarily for hospital use), 30 mg./cc.—in 4 fl. oz. bottles, in cartons of 36 bottles and in 1 gallon bottles.

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